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ABSTRACT

A study was conducted to assess the use of the Psychological Services Bureau's Aptitude Test for Practical Nursing (PSB Aptitude Test) as an entrance requirement for the licensed vocational nurse (LVN) program at College of the Sequoias. The study sought to determine whether the PSB Aptitude Test was a valid indicator of success in the LVN program, and if other requirements could be used instead. Data were obtained on 35 students who had been accepted in the LVN classes for fall 1980-81 and spring 1982-83 and a linear multiple correlation and regression analysis was used to compare the dependent variable, success in the LVN program as determined by student grade point average (GPA), with three independent variables: PSB scores, science GPA, and math-reading scores. The conclusions reached in the study were: (1) no significant association was found involving PSB scores as a predictor of nursing GPA; and (2) both science GPA and math-reading scores were significantly related to success in the LVN program. Based on results of the study, a revision of LVN admission policy was recommended, eliminating the PSB Aptitude Test as an entrance requirement for the LVN program and using science GPA and math-reading scores as predictors of student success in the program. Appendices provide the LVN interview point scoring system, study hypotheses, and raw data. (Author/HB)

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POLICY EVALUATION:
USE OF THE PSB-APTITUDE TEST
AS AN ADMISSION REQUIREMENT FOR THE LVN PROGRAM

THE POLITICS, LAW, AND
ECONOMICS OF HIGHER EDUCATION

by

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A PRACTICUM PRESENTED TO NOVA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
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ABSTRACT

An ex post facto study was conducted to assess the use of the PSB-Aptitude Test as an entrance requirement into the LVN (licensed vocational nurse) program at College of the Sequoias. The PSB scores were compared with other admission requirements imposed upon the student, science courses and math-reading tests. The problem was to (1) determine whether the PSB test was a valid indicator of success in the LVN program and (2) to determine if the other admission requirements could be used instead.

A linear multiple correlation and regression with partial correlation was used to compare the dependent variable, success in the LVN program (nursing G.P.A.), with three independent variables, PSB scores, science G.P.A. and math-reading scores. The statistical significance was established using the t-test, the F test, and the critical value for r at $P < 0.05$.

Two conclusions were reached. First, no significant association was found involving the PSB scores as a predictor of nursing G.P.A. Second, both science G.P.A. and math-reading scores can be used as predictors of success in the LVN program. Thus it was recommended that the PSB-Aptitude Test be eliminated as an entrance requirement for the LVN program at College of the Sequoias. It was further suggested that science G.P.A. and math-reading scores could be used as predictors of success in the LVN program.

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INTRODUCTION

College of the Sequoias is a comprehensive community college which serves approximately 3,600 day and 3,400 evening students. The service area of the district covers an expanse of over 3,000 square miles in the agricultural San Joaquin Valley of Central California. The college offers a wide range of college transfer programs, numerous continuing education programs, remedial programs, and community services in addition to extensive vocational-occupational educational programs.

General enrollment at the college is open to all students*. However, enrollment at the college does not guarantee a student space in a particular program. Due to limitations imposed by the facilities themselves and the amount of funds available for staffing, some of the programs cannot accommodate all potential students. Programs in the building and mechanical trades as well as the paralegal services take students on a first come first serve basis. However, the police academy and the health sciences have devised screening techniques which admit those students deemed "most likely to succeed" since their programs are extremely expensive to operate.

*Chapter 11, Division 2, Part VI, Title 5 of the California Administrative Code; Section 51820, the Civil Rights Act of 1964; Title IX of the Educational Amendments of 1972

The Division of Health Sciences offers both a registered nurse (RN) as well as a licensed vocational nurse (LVN) program which has a combined capacity of 150 students (120 and 30 students respectively). The greatest constraint placed upon the program is simply the lack of acute care facilities in the surrounding communities where the students can be assigned for clinical experience. The "demand" for both nursing programs is high but the "supply" of spaces is limited. Hence, over the years screening processes have evolved in response to this problem of supply and demand. This practicum was directed towards an examination of the policies employed by the college in selecting students for the licensed vocational nurse (LVN) program.

A school-wide policy dictates that all entering students take the Comparative Guidance And Placement Program Of College Board Examination in mathematical computation and reading. In addition, prospective LVN students must also:

- (a) take and pass an "in-house" nursing math test
- (b) take the PSB-Aptitude Test (Psychological Services Bureau's Aptitude Test For Practical Nursing) which also includes sections on mathematical computation and reading in addition to science and psychology
- (c) complete the following science courses (regardless of test scores) with a minimum grade of C: basic math, psychology, and human anatomy and physiology
- (d) have a cumulative G.P.A. no lower than 2.0 (C).

Individuals who have completed those requirements are then invited to participate in a formal interview. Students are selected for the LVN program based upon the interview and the PSB-Aptitude Test scores (Appendix A).

Students have repeatedly commented that the requirements for admission into the LVN program at the College of the Sequoias are more cumbersome and lengthy than those of LVN programs at other community colleges in the valley. The main complaint has centered around requiring so many tests. The tests are not only time consuming and costly for the students but for the college as well.

Problem

In view of the foregoing discussion, it appeared that a re-evaluation of the testing policy should be undertaken, hence, the purpose of this practicum. At the request of the director of the College of the Sequoias nursing program, the research problem addressed the policy regarding the use of the PSB-Aptitude Test. In view of the other requirements imposed on the student for admission into the LVN program, is the PSB-Aptitude Test a valid requirement? Is the PSB-Aptitude Test a valid indicator of success in the program? Could the grades earned in the three prerequisite courses and/or the scores obtained on the Comparative Guidance And Placement Program Of College Board Examination in mathematical computation and

and reading be used as valid indicators of success in the program in place of the PSB-Aptitude Test?*

Hypothesis

The research hypothesis which guided the development of this practicum was as follows: the PSB-Aptitude Test can be eliminated as a predictor requirement for entry into the LVN program at the College of the Sequoias since some of the other entry requirements are at least, if not more, indicative of success in the program.

Description Of The Study

An ex post facto study was conducted (Wiersma, 1980). The purpose of the study was to re-evaluate the use of the PSB-Aptitude Test as an entrance requirement for the LVN program at the College of the Sequoias. The PSB scores were examined along with other admission requirements, science courses and math-reading tests. The problem was to (1) determine whether the PSB test was a valid indicator of success in the LVN program and (2) to determine if other admission requirements could be used instead.

*Note: data from the "in-house" nursing math test was unavailable and therefore could not be considered for inclusion in this particular study.

A linear multiple correlation and regression with partial correlation was used to compare ultimate success in the LVN program as indicated by nursing G.P.A. (the dependent variable) with each of the three independent variables (PSB scores, science G.P.A., and math-reading scores). The data which were obtained from the nursing office at the college were run on an Apple IIe computer. The statistical significance of the data was determined using the t-test, the F test, and the critical value for r at $P < 0.05$ in conjunction with a series of null hypotheses.

BACKGROUND AND SIGNIFICANCE

Predictors In General

Numerous studies have been conducted concerning the validity of using achievement tests as predictors of ultimate success in a program. Irvine (1966) published a 5 year study of students at the University of Georgia. He found that high school grade point averages rather than achievement test scores to be the best single predictors of persistence. (Persistence is defined as completion of a program with either a degree or certificate.) Even so, the correlation was rather low ($r = 0.34$). Cope and Hannah (1975) have also reported that pre-college admissions

tests are of little value for identifying persisting students. The general trend among test takers has been that the average scores have usually been lower for dropouts than for graduating students. However, several investigations have failed to find significant differences between the academic aptitudes test scores of dropouts and persisters (Fenstemaker, 1973; Nicholson, 1973; Savicki, Schumer, and Stanfield, 1970).

Coleman (1966) contends that achievement tests "...do not measure intelligence, nor attitudes, nor qualities of character. Furthermore, they are not, nor are they intended to be, culture-free" (p.10). On the other hand, an interesting point comes from Thomas and Stanley (1969) and Kendrick and Thomas (1970). The results of their research indicated that, for blacks, test scores were better predictors of college grades than high school grades. While it seems safe to conclude that poor test scores and failure to enroll in college programs are closely related, the question remains, however, whether they are actually indicative of performance in college (Cross, 1974).

Predictors In Nursing

"Although predicting student success concerns the total educational community, it is a crucial issue in nursing" (Hayes, 1981, p. 4). Community colleges are continually faced with the problem of admitting students while following some form of the open-door policy. Thus it

is not uncommon nor surprising to find high attrition rates among students in nursing programs (Yess, 1980; Weinstein, et al., 1980).

Educators are concerned over this since,

...in limited access programs such as nursing, each place occupied by an unsuccessful student must necessarily be denied to a potentially successful applicant. Thus, failure and withdrawal represents a tremendous wastage of human resources in monetary terms, as well as in terms of opportunity loss to unsuccessful students and potentially successful applicants (Weinstein, et al., 1980, p. 53-54).

Nursing educators are attempting to come to grips with the problems inherent in the apparent conflict between the community colleges' open-door admission policy and the training of highly competent nurses. Unfortunate as it is, very little is known about what predicts community college student academic success. Even less is known about what predicts success in specific community college programs such as nursing (Yess, 1980).

Only a few studies have dealt with predictors of success for students in community college nursing programs. In Canada, Weinstein and his associates (1980) reported that a combination of pure and applied science courses and language skills was the best preparation for success in a nursing program. They did go on to suggest that motivational factors may be significant. Meanwhile, Donsky and Judge (1981; 1982) at Lakeland Community College, Ohio, found high school G.P.A. and reading comprehension scores to be significant. Bistreich (1977) at Miami-Dade Community College and Larkin (1977) at Prince George's Community College, Md., had also reported similar findings.

Grippando (1973;1974) conducted a study involving practical nursing education in Illinois. She compared ACT test scores with nursing G.P.A. She concluded that factors other than achievement tests should be considered as indicators of success in nursing education. Haywood and Hoffman (1975) went so far as to state that standardized test scores used to screen nursing applicants were discriminatory for those individuals over forty years of age. Finally, Tatham (1976), Johnson County Community College, Kansas, reported that academic qualifications were not reliable indicators of whether a student completed the nursing program.

The findings described above are complemented by several studies involving nursing education at the baccalaureate level. Seither (1980) stated that G.P.A. in biological science and behavioral science courses and ACT reading scores were significant predictors of success. Personality and interest tests had little predictive value. Hayes (1981) also found cognitive variables powerful predictors of academic success in nursing. She also reported that personality factors as measured by the California Psychological Inventory and the Survey of Interpersonal Values tests were not significant predictors of academic success. Zagar, et al. (1982) came to similar conclusions.

Significance

The issue of using predictors or not as a screening device for entry into a community college nursing program remains a matter of

individual school policy. It is also a matter of individual policy in deciding what predictors to ultimately use. The objective of this practicum was to examine and evaluate the policy currently employed by the College of the Sequoias.

PROCEDURE

The design of this practicum followed the correlation research method described by Isaac and Michaels (1977) which is used to ascertain the strength of associations (Lapin, 1981). In order to approach the problem, the following steps were used. First, the variables were identified and a sampling procedure was outlined. Next data were collected, tabulated and run on a computer. Finally, the results were interpreted in conjunction with a series of null hypotheses.

- I. Identification of Variables. Permission had been secured from the college for access to student files (located in the nursing department office) for the purpose of obtaining the following data.

- A. Independent variables:

1. PSB-Aptitude Test scores
2. Cumulative G.P.A. in prerequisite science courses
3. Math-reading scores from the Comparative Guidance
And Placement Program Of College Board Examination

- B. Dependent variable:

Cumulative G.P.A. in 42 units of nursing classes

II. Sampling Method. All students who had applied and had been accepted into either of the last two LVN classes (Fall 1980-81 and Spring 1982-83) constituted the initial sample population for this study (N=44). In order for a student's records to be actually used in this study, data for all four variables had to be available. Hence, the actual size used was reduced from N=44 to N=35. Isaac and Michael (1977, p. 69) note that while it is preferable to use a large sample so as to reduce the chance of sampling error, samples with N's between 10 and 30 "...are large enough to test the null hypothesis..."

College of the Sequoias had accepted SAT or ACT scores from seven students who had not taken the Comparative Guidance And Placement Program Of College Board Examination. Additionally, two students had not taken a course in basic math, but had been allowed credit for completion of elementary algebra. Thus, the resulting sample, N=35, constituted what Wiersma (1982, p. 207) has described as an "intermediate sample."

III. Data Analysis. The Applesoft computer program Statistics With Daisy (Killion, 1981) was used to run a linear multiple correlation and regression of the data (one dependent and three independent variables) with partial correlations. The sample coefficient of multiple determination was used as a general index of association. The coefficient of partial determination was considered in evaluating the potential

merits of predictor variables (Lapin, 1981). Statistical significance at $P < 0.05$ was assessed using the t-test, the F test, and the critical value for r. The program was run on an Apple IIe computer.

Hypothesis Testing

A series of null hypotheses were established and tested based upon the strengths of association obtained from the correlation and regression analysis (Spiegel, 1961). Due to the fact that the series is quite lengthy and that specific reference to each hypothesis is given again in the results section, the hypotheses are listed in Appendix B.

Definition of Terms

To avoid the possibility of ambiguity, the following definitions were used in this study.

Student. Anyone who had applied and was accepted into either of the last two LVN classes (Fall 1980-81 and Spring 1982-83) at College of the Sequoias, Visalia, California. This included individuals who completed the program as well as those who did not.

G.P.A. A four point scale was used where A = 4 and F = 0. To remain in the program, each nursing class must be completed with a minimum grade of C (2.0).

Success. Completion of the program (all 42 units with a minimum of a C in each class).

Nursing G.P.A. Grade point average resulting from the 42 units of nursing classes required for completion of the program. Students who did not complete the program were assigned a G.P.A. of 1.

Science G.P.A. Grade point average computed by averaging the grades for the math, psychology, and human anatomy and physiology classes.

Math-reading Scores. Percentile scores obtained on the mathematical computation section and the reading section of the Comparative Guidance And Placement Program Of College Board Examination were averaged together.

PSB-Aptitude Test. Psychological Service Bureau's Aptitude Test For Practical Nursing, a screening test designed by the Psychological Service Bureau, St. Thomas, PA 17252. The test included the following areas: verbal/vocabulary, arithmetic, non-verbal, spelling, reading, natural sciences, judgment and personal adjustment.

Student Files. These were individual folders which contained the following: student application to the LVN program, health forms, college transcripts and test scores, and interview sheets.

Assumptions And Limitations

Numerous assumptions and limitations were associated with this study. They are described below.

1. It was assumed that all students in the sample had similar academic potential.
2. It was assumed that the sample used was representative of the population of LVN students at College of the Sequoias.

3. The sample was small (N=35). (Refer to p. 10 in this study.)
4. It was assumed that demographic data was not relevant to the results of the study.
5. The possibility of outside pressures and obligations (family, financial, etc.) was ignored.
6. There was no control over factors of personality or motivation.
7. Ex post facto studies have certain inherent limitations (Wiersma, 1980). The variables are studied in retrospect and cannot be manipulated.
8. General limitation of correlation studies. Correlation studies can only measure the degree of association between related sets of data. Such studies do not signify a causal relationship between variables (Byrkit, 1975).
9. A nursing G.P.A. of 1 was assigned to all students who did not complete the program regardless of how far along in the program they had progressed.

RESULTS

The correlation results have been tabulated and recorded in tables. Results from the multiple correlation considering all variables together are found in Table 1. Partial correlations data are presented in Tables 2 - 7. The raw data used in the analysis has been included in Appendix C.

The data presented in Table 1 was considered in conjunction with H_{01} :

There is no significant association between nursing G.P.A. and PSB test scores, math-reading test scores and science G.P.A.

The calculated F test value and the r value were higher than the critical values; therefore, the null hypothesis was rejected. The alternative hypothesis was accepted.

H_{a1} : There is a significant association between nursing G.P.A. and PBS test scores, math-reading test scores and science G.P.A.

TABLE 1
Multiple Correlation Between Nursing G.P.A. And
PSB Scores, Math-reading Scores And Science G.P.A. (N=35)

Method	r	r ²	t-test*	F test
multiple regression	0.710	0.504	a = 0.023 b = 3.130 c = 2.075	10.529

*Individual t-test: a = PSB scores; b = science G.P.A.; c = math-reading scores

Note critical values at $P < 0.05$: r = 0.325; t = 2.03; F = 2.92 (df3,31)

Association data for the PSB test and nursing G.P.A. are presented in Table 2. This data was examined in conjunction with H_02 :

There is no significant association between nursing G.P.A. and PSB test scores for students having the same math-reading test scores and science G.P.A.

The F value as well as the t values exceeded the critical values indicated. However, the r value calculated by the partial correlation method did not exceed the critical value. Accordingly, the null hypothesis was not rejected at this point.

TABLE 2

Partial Correlation Between Nursing G.P.A. And
PSB Scores With Other Variables Constant (N=35)

Method	r	r ²	t-test	F test
subsets regression	0.399	0.152	2.504	6.27
partial correlation	4.3E-03			

Note critical values at $P < 0.05$: $r = 0.325$; $t = 2.03$; $F = 4.15$ (df1,33)

Table 3 has a list of data appropriate to the third null hypothesis.

H_{03} : There is no significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores and math-reading test scores.

The computed values of r , t , and F exceeded the critical values. A significant association was indicated. Hence, the alternative hypothesis was accepted.

H_{a3} : There is a significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores and math-reading test scores.

TABLE 3

Partial Correlation Between Nursing G.P.A. And
Science G.P.A. With Other Variables Constant (N=35)

Method	r	r^2	t-test	F test
subsets regression	0.649	0.423	4.090	24.106
partial correlation	0.490	0.240		

Note critical values at $P < 0.05$: $r = 0.325$; $t = 2.03$; $F = 4.15$ ($df1,33$)

The math-reading test data, presented in Table 4, were used to analyze H_0 : There is no significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A. and PSB test scores.

Critical values of r , and F were exceeded. Therefore, the alternative hypothesis was deemed acceptable.

H_a :4 There is a significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A. and PSB test scores.

TABLE 4
Partial Correlation Between Nursing G.P.A. And
Math-reading Scores With Other Variables Constant (N=35)

Method	r	r^2	t-test	F test
subset regression	0.580	0.336	4.100	16.816
partial correlation	0.349	0.121		

Note critical values at $P < 0.05$: $r = 0.325$; $t = 2.03$; $F = 4.15$ (df1,33)

The data given in Table 5 were useful for testing H_{05} and H_{06} .

H_{05} : There is no significant association between nursing G.P.A. and PSB test scores for students having the same math-reading test scores.

H_{06} : There is no significant association between nursing G.P.A. and science G.P.A. for students having the same math-reading test scores.

In both cases the values computed using the subsets regression as well as with the partial correlation technique were suggestive of the alternative hypotheses:

H_{a5} : There is a significant association between nursing G.P.A. and PSB test scores for students having the same math-reading test scores.

H_{a6} : There is a significant association between nursing G.P.A. and science G.P.A. for students having the same math-reading test scores.

TABLE 5

Partial Correlation Between Nursing G.P.A. And PSB Scores Or
Science G.P.A. With Math-reading Scores Constant (N=35)

Method	r	r ²	t-test	F test
subset (a+b) regression	0.660	0.435	a = 0.884 b = 3.958	12.36
partial correlation	a = 0.126 b = 0.502	a = 0.015 b = 0.25		

Individual tests: a = PSB scores; b = math-reading scores

Note critical values at $P < 0.05$: $r = 0.325$; $t = 2.03$; $F = 3.30$ (df2,32)

Table 6 contains data for assessing the seventh and eighth null hypotheses.

H₀7: There is no significant association between nursing G.P.A. and PSB test scores for students having the same science G.P.A.

H₀8: There is no significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A.

In all cases the critical values were exceeded. Hence, the alternative hypotheses were found to be acceptable.

H_{a7} : There is a significant association between nursing G.P.A. and PSB test scores for students having the same science G.P.A.

H_{a8} : There is a significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A.

TABLE 6

Partial Correlation Between Nursing G.P.A. And PSB Scores
Or Math-reading Scores With Science G.P.A. Constant (N=35)

Method	r	r ²	t-test	F test
subset (a+c) regression	0.590	0.348	a = 0.721 c = 3.041	8.54
partial correlation	a = 0.154 c = 0.378	a = 0.023 c = 0.142		

Individual test scores: a = PSB scores; c = math-reading scores

Note critical values at $P < 0.05$: $r = 0.325$; $t = 2.03$; $F = 3.30$ (df2,32)

Finally, data germane to the testing of the final two null hypotheses are located in Table 7.

H_09 : There is no significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores.

H_010 : There is no significant association between nursing G.P.A. and math-reading test scores for students having the same PSB test scores.

All computed r and t values as well as the F value were found to exceed the critical levels. As a result of these findings, the final two alternative hypotheses were considered acceptable:

H_a9 : There is a significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores.

H_a10 : There is a significant association between nursing G.P.A. and math-reading test scores for students having the same PSB test scores.

TABLE 7

Partial Correlation Between Nursing G.P.A. And Science
G.P.A. Or Math-reading Scores With PBS Scores Constant (N=35)

Method	r	r ²	t-test	F test
subset (b+c)	0.710	0.504	b = 3.286 c = 2.309	16.30
partial correlation	b = 0.573 c = 0.473	b = 0.328 c = 0.223		

Individual tests: b = science G.P.A.; c = math-reading scores

Note critical values at $P < 0.05$: $r = 0.325$; $t = 2.03$; $F = 3.30$ (df2,32)

DISCUSSION AND CONCLUSIONS

The initial hypothesis which guided the development of this study was that the PSB-Aptitude Test could be eliminated as a predictor requirement for entry into the LVN program at the College of the Sequoias since some of the other entry requirements were at least, if not more, indicative of success in the program. This hypothesis has been supported by the data presented in Tables 1 - 7 and in the testing of a series of null hypotheses.

To summarize, the multiple correlation-regression, $r = 0.071$ (Table 1), involving all the independent variables (PSB scores, science G.P.A. and math-reading scores) suggested a significant association between success in the program and their potential as predictors. The r^2 value of 0.504 represented a 50.4% degree of reliability for the predictors (Byrkit, 1975). Data from the t-test (Table 1) indicated that the PSB scores did not contribute significantly as a predictor. This was confirmed by similar data in Table 7 which considered science G.P.A. and math-reading scores together.

Data in Table 2 further suggested that the PSB scores were unreliable as predictors ($r^2 = 0.152$). In Tables 3 and 4 science G.P.A. or math-reading scores considered alone were considered to be significant predictors, $r^2 = 0.432$ and $r^2 = 0.336$ respectively. When PSB scores were combined with either science G.P.A. or math-reading scores (Tables 5 and 6), the over all significance of the predictors did not increase, $r^2 = 0.435$ and $r^2 = 0.348$ respectively. In both instances the PSB scores were not significant, $r^2 = 0.015$ and $r^2 = 0.023$.

Significant associations were noted between science G.P.A. and/or math-reading scores coupled with nursing G.P.A. Therefore, two conclusions were reached.

1. Both science G.P.A. and math-reading scores can be used as predictors of success in the LVN program.
2. No significant association was found involving the PSB scores as a predictor of nursing G.P.A.

Recommendations

While remaining aware of the inherent limitations associated with ex post facto studies, correlation techniques and a small sample size, several recommendations seemed justified. It is recommended that the current LVN admission policy be revised. Specifically, it is recommended that the PSB-Aptitude Test be eliminated as an entrance requirement for the LVN program at the College of the Sequoias. The associations described in this study further suggest that science G.P.A. and math-reading scores could be used as predictors of success in the LVN program. The students as well as the college will benefit in a savings of both time and money by eliminating the use of the PSB test.

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APPENDIX A

DEPARTMENT OF VOCATIONAL NURSE EDUCATION

COLLEGE OF THE SEQUOIAS

Interview Point Scoring System

Name _____

Total Score _____

I. Pre-Test Score (PSB-Aptitude Test)

- a. very easy - 25
- b. easy - 20
- c. high average - 15
- d. average - 10
- e. difficult - 5
- f. very difficult - 0

Score _____

II. COS District Resident

- a. resident - 5
- b. nonresident - 0

Score _____

III. General Appearance

- a. meticulously groomed - 20
- b. neat, well groomed - 15
- c. generally neat and clean - 10
- d. careless - 5
- e. untidy - 0

Score _____

IV. Personal And Professional Qualities

- a. shows keen interest, seeks advanced information, courteous - 20
- b. shows interest, asks questions, courteous - 15
- c. seems interested, asks occasional questions, courteous - 10
- d. no questions, vague answers, distracting mannerisms - 0

Score _____

TEST

GENERAL MENTAL ABILITY

V - Verbal
Ability

A - Arithmetic

NV - Non-Verbal
Ability

SPELLING

NATURAL SCIENCE

JUDGMENT

PERSONAL ADJUSTMENT

Very Low	Low	Below Average	Low Average	Average	High Average	High	Very High	Superior
4	1	25	40	60	77	89	95	99

Psychological Services Bureau's
PSB-Aptitude for Practical Nursing Examination
Interpreted by College of the Sequoias Staff

APPENDIX B

NULL HYPOTHESES

- H_{01} : There is no significant association between nursing G.P.A. and PSB test scores, math-reading test scores and science G.P.A.
- H_{a1} : There is a significant association between nursing G.P.A. and PSB test scores, math-reading test scores and science G.P.A.
- H_{02} : There is no significant association between nursing G.P.A. and PSB test scores for students having the same math-reading test scores and science G.P.A.
- H_{a2} : There is a significant association between nursing G.P.A. and PSB test scores for students having the same math-reading test scores and science G.P.A.
- H_{03} : There is no significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores and math-reading test scores.
- H_{a3} : There is a significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores and math-reading test scores.
- H_{04} : There is no significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A. and PSB test scores.
- H_{a4} : There is a significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A. and PSB test scores.

- H₀5: There is no significant association between nursing G.P.A. and PSB test scores for students having the same math-reading test scores.
- H_a5: There is a significant association between nursing G.P.A. and PSB test scores for students having the same math-reading test scores.
- H₀6: There is no significant association between nursing G.P.A. and science G.P.A. for students having the same math-reading test scores.
- H_a6: There is a significant association between nursing G.P.A. and science G.P.A. for students having the same math-reading test scores.
- H₀7: There is no significant association between nursing G.P.A. and PSB test scores for students having the same science G.P.A.
- H_a7: There is a significant association between nursing G.P.A. and PSB test scores for students having the same science G.P.A.
- H₀8: There is no significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A.
- H_a8: There is a significant association between nursing G.P.A. and math-reading test scores for students having the same science G.P.A.
- H₀9: There is no significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores.
- H_a9: There is a significant association between nursing G.P.A. and science G.P.A. for students having the same PSB test scores.

H_{010} : There is no significant association between nursing G.P.A. and math-reading test scores for students having the same PSB test scores.

H_{a10} : There is a significant association between nursing G.P.A. and math-reading test scores for students having the same PSB test scores.

APPENDIX C

List of Raw Data

Student	a	b	c	d
1	73.4	2.7	79.0	3.0
2	79.2	4.0	72.5	3.5
3	70.4	4.0	56.0	4.0
4	79.2	4.0	70.0	3.5
5	65.8	3.7	72.5	3.0
6	61.8	3.0	75.0	3.0
7	71.6	3.4	66.0	2.5
8	34.2	3.0	36.0	3.0
9	95.8	3.7	68.0	3.0
10	70.2	3.4	49.0	3.0
11	80.2	3.7	55.5	3.0
12	73.0	2.7	56.0	2.0
13	54.0	2.7	58.5	3.0
14	77.6	3.0	67.5	3.0
15	78.2	3.7	68.0	3.0
16	47.0	2.7	47.0	2.5
17	71.8	2.2	60.0	2.5
18	67.6	2.7	43.5	3.0
19	62.0	3.0	61.0	3.0
20	52.0	2.7	44.0	3.0
21	48.2	3.0	69.0	3.0

continued on next page

List of Raw Data

Student	a	b	c	d
22	69.0	2.0	45.0	2.0
23	74.2	3.0	58.0	2.0
24	47.2	2.7	70.0	3.0
25	54.4	4.0	70.5	3.0
26	65.6	3.0	58.0	2.0
27	74.8	3.3	44.0	3.0
28	81.6	3.0	82.5	3.0
29	76.0	3.0	60.0	3.0
30	34.2	2.0	37.5	1.0
31	32.2	2.0	34.0	1.0
32	56.0	3.0	51.5	1.0
33	71.8	2.3	38.0	1.0
34	24.4	2.7	32.5	1.0
35	74.2	2.7	51.5	1.0

Note: all scores were rounded off to the nearest 10th.

a = PSB test scores (percentile)

b = science G.P.A.

c = math-reading test scores (percentile)

d = nursing G.P.A.

Note: specific reference to calculation of nursing G.P.A. -
three students earned a C in 21 units and a B in 21 units;
two students earned a grade of B in 21 units and an A in 21
units; the remainder earned either all A's, B's, or C's. (See
p. 13, number 9.)